

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



UNITED STATES DEPARTMENT OF AGRICULTURE  
Bureau of Agricultural Engineering

## M O N T H L Y   N E W S L E T T E R

(Confidential information, for Bureau staff only.  
(Not released for publication)

Vol. 5.

March 25, 1936

No. 7.

The condition of transits, levels and other instruments returned to the stock room give evidence of unnecessarily rough usage. Minor accessories, such as adjusting pins, center keys, and plumb bobs are frequently missing. More care needs to be exercised to see that equipment is properly taken care of.

Where temporary employees are used, the regular employee in charge of the work is expected to see that the instruments and other equipment used are given proper care.

During the month of February as reported by J. G. Sutton the thirty-six CCC camps in the Central District cleared a total of 7,695,819 square yards on drainage channels and levees, requiring 51,975 man-days. The excavation amounted to 202,583 cubic yards, requiring 2,254 man-days. A total of 515 man-days were spent on tile work. Emergency work and other items total 7,046 man-days.

Camp D-1, under H.C. Carstensen, D-2, under F.A. Daum, D-3, under W.A. Hogle, and D-9, under Clayton F. Kelley, were particularly active in emergency flood work in northwestern Ohio. The foremen blasted many ice jams in the rivers. Enrollees rescued many persons from flooded areas by means of boats and saved much property damage.

Camp D-5, Havana, Ill., under Superintendent L.D. Putnam, prevented one levee break by having an organization on the job promptly after ice jams caused a rapid rise in a diversion channel. Camp D-5-Illinois also rendered valuable aid to a flooded district by blasting a hole in the levee at the lower end of the district, providing an immediate outlet for flood waters in the district and preventing the winter wheat being killed.

The Boyer River overtopped levees and completely inundated a large portion of Missouri Valley, Iowa. Enrollees of that camp under the direction of Superintendent F.R. Smith rendered valuable service in removing persons and property from the flooded area. Camp D-2, Whiting, Iowa, under the direction of A.H. Mayne, is rendering valuable service during high water in the Missouri Valley lowlands.

For the purpose of consulting with officials of the Farm Credit Administration in connection with the completion of his report for the Cooperative Division of that Administration, on mutual irrigation companies in Utah and California, Wells A. Hutchins left Berkley for Washington, D.C., where it was expected he would remain for several weeks.

Snow cover measurements made on key courses of Utah indicated that the accumulation of moisture on the watersheds of central and northern Utah during February has been the greatest since records have been kept, according to George D. Clyde. It is unusually heavy between 5,000 and 8,000 foot elevation. Depth of snow varied from 18.6 to 110.5 inches. Carl Rohwer reports that in Colorado results of the February 1 observations indicated that the snow cover on most of the courses was above normal, and conditions at present are favorable for a heavy run-off next summer.

The study under the direction of R.L. Parshall, of the deposition of silt in moving water, at the silt laboratory near El Centro, Calif., was concluded. There were 21 tests where the discharge through the flume ranged from 7.5 to 99 second-feet. About 400 individual silt samples were obtained, and the dry weight of solids for each sample determined, making possible the determination of the percentage by weight of the suspended load carried in the water at various depths of water flowing through the laboratory flume. The analysis of these silt samples was made by the Bureau of Reclamation at the Field Testing Laboratory of the All-American Canal, Yuma, Ariz. It is the intention that hydrometric tests will be made on each of the samples to determine the percentages of size of particle. At the conclusion of the work on the silt study, a modified form of the adjustable tube orifice meter, having a 3-foot throat, was installed at the laboratory and tested.

Upon request of the Texas board of Water Engineers, Harry G. Nickle visited each of the seven irrigation districts included in the master irrigation district which is now building with PWA funds the Red Bluff dam. Mr. Nickle made a general inspection of present drainage works and obtained necessary data with which to make an estimate of cost for a drainage investigation in this area.

A series of experiments to determine the effect of varying degrees of soil moisture in irrigation of pear trees was begun by R.A. Work on a privately owned orchard near Medford, Oreg. The fine sandy loam soil is underlain at a depth of 6 or 7 feet by river wash. The water table is expected to be below 9 feet during the irrigation season. Eight lined test wells have been installed, a topographic map prepared, an irrigation head ditch laid out, and plots located. Three irrigation treatments will be initiated, with moisture conditions of the soil as follows: (1) highly available soil moisture maintained by frequent irrigation; (2) available moisture in all parts of the root zone maintained at all times by irrigation, as required; (3) soil moisture allowed to be depleted to the point where resultant tree suffering becomes plainly evident by wilting or marked decrease in rate of fruit growth. Intensive sampling will be practiced at 10 locations per plot each sampled in one foot increments to the lower depth of the active root zone at one week to 10 days intervals.

In connection with the study of evaporation from free water surfaces, A.A. Young installed a tank 2 feet in diameter by 3 feet deep at the Fullerton station in southern California. This is to be shaded by a quarter-inch screen or one of different mesh, to shade the water surface. It is hoped to be able to reduce evaporation from a small tank until it is practically equal to that from the 12-foot tank. If a cheap substitute for the 12-foot tank can be

found it will lower the cost of any future installations. In addition it may make it possible through use of shaded tanks at lakes or reservoirs to obtain evaporation records that more closely approach such losses from large bodies of water.

A paper entitled "Some Mechanical Elements Involved in Good Ginning" was presented by C.A. Bennett before the Sub-Committee on Raw Cotton at the meeting of the American Society for Testing Materials, Washington, D.C., on March 11.

A delegation of Russians representing cotton-ginning and ginning-research agencies of the U.S.S.R. spent several days at the cotton ginning laboratories discussing ginning problems with C.A. Bennett and F.L. Gerdes.

R.C. Young and V.L. Stedronsky have returned from Sacaton, Ariz., where they conducted experimental ginning tests on Pima cotton in cooperation with the Bureaus of Plant Industry and Agricultural Economics.

"Sharpening Gin Saws for Better Efficiency and Quality of Ginning", by C.A. Bennett and F.L. Gerdes, was prepared for publication in the 1936 Convention issue of the Cotton Ginner's Journal. Another article, entitled "The Movement to Improve Cotton Ginning in the United States", by F.L. Gerdes and C.A. Bennett, was submitted to The Cotton and Cotton Oil Press for publication in their 1936 Convention Edition.

R.B. Gray visited the proposed rural electric demonstration farm of the R.E.A., March 20, checking up on equipment necessary to electrify this farm.

Preliminary tests have shown that it is possible to substantially reduce the thinning time required for sugar beets if the seedling stand is very uniform and not too thick, according to S.W. McBirney. Work is being done on a small planter in an attempt to secure seed placement of approximately one seed ball per inch of row. This, it is believed, will give a desirable stand for more rapid thinning.

E.M. Dieffenbach has recently sent to the Washington office the description of a machine which he designed and constructed for the reading of 35 mm. film, double frame. Although the outfit only cost about \$15 for materials, Dieffenbach considers it satisfactory for his use in reading the films now obtainable from Science Service.

G.A. Cummings left Washington on March 17, in connection with the spring work on fertilizer placements in the southeastern states. Messrs. Schoenleber and Redit left for Onley, Va., on March 16, to put in fertilizer placement experiments on potatoes, but owing to continued rains they were forced to return to Washington to await more seasonable weather.

At the Farm Tillage Machinery Laboratory at Auburn, Ala., work of placing the corrugated metal sheets on the soil-plot cover cars is progressing. With the cover cars thus equipped, they can be arranged along an individual soil plot to divert the rainfall and thus provide controlled moisture conditions. In connection with the studies relating to turning under rank growing leguminous cover crops, three sets of attachments have been built in the laboratory for application on existing machines. The International Harvester Co., and John Deere Co., are making specially designed units for this work. A universal mounting for tillage tools is under construction. By means of this unit the summation of the linear forces acting on the tillage tool will be measured and the point of intersection of the three right-angled resultants will be located. Visitors to the Tillage Machinery Laboratory were S.H. Starr,

Director of the Georgia Coastal Plain Experiment Station, who plans to use the Bureau's variable-depth method of cotton planting; and Fred H. Bateman, President of the Iron Age Co., who conferred with reference to cotton planters.

The John Deere Co., J.I. Case Co., and Ed Moreno of Montgomery, Ala., have now placed on the market variable-depth cotton planters developed by the Bureau.

Wallace Ashby recently visited the experiment stations of Kansas, North Dakota and Illinois for conferences regarding plans for the grain-storage investigations to be carried on during the coming year in cooperation with these stations and the Bureaus of Agricultural Economics and Plant Industry. Tentative plans have been made for the experimental storage of several thousand bushels of wheat at each of these locations to test the relative merits of various types of bins and systems of ventilation. Plans are also being made for observation of about 25 farmers' bins in each of the cooperating states.

During his work on potato storage at Presque Isle, Me., A.D. Edgar has obtained shrinkage records of potatoes stored in some 60 bins, with storage periods varying from 4 weeks to 32 weeks. Since the rate of shrinkage is influenced by temperature and humidity in the bin as well as by length of storage period, it is difficult to determine the separate effect of the various factors. The graphical multiple correlation method developed by L.H. Bean of the Department is being used to analyze the data.

The use of bottled gas - a heavy, condensed component of natural gas - for both home and industrial purposes is rapidly increasing in importance. A.H. Sennar has recently completed tests of the efficiency and operating characteristics of cooking stoves and water heaters for use with bottled gas. These tests were conducted at the laboratory of Johns Hopkins University.

W.V. Hukill of this Bureau and R.C. Wright and E.A. Gorman of the Bureau of Plant Industry are making a field study of precooling fruits and vegetables in the market gardening sections of Florida.

Publications issued:

"Effect of Gin Saw-Speed and Seed-Roll Density on the Quality and Monetary Value of the Lint and on the Operation of the Gin Stand." By C.A. Bennett and F.L. Gerdes. Tech. Bul. 503.